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EXAMINER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



### **DETAILED ACTION**

1. Applicant's election without traverse of Group I, claims 1, 3-12 and 14 (claim 2 was previously cancelled) in the response filed on February 06, 2008 is acknowledged. Accordingly, Claims 13 and 15 are withdrawn from consideration and claims 1, 3-12 and 14 are considered and being examined as follow.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-8, 10-12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Lim et al. (U.S Patent No. 7,053,880), hereinafter Lim.

In reference to claim 1, Lim discloses a field-sequential type display device for performing a display by synchronizing successive switching of lights of a plurality of colors to be incident on a display element with light control in said display element based on display data of each color corresponding to an image to be displayed (col. 1, lines 12-21) , comprising:

a detecting unit (120 of Fig. 7 and ST 11 of Fig. 9) for detecting a grayscale level of the display data for each color (col. 8, lines 47-55); and

an adjusting unit (120 of Fig. 7 and ST 2 of Fig. 9) for adjusting, individually independently for each color, an intensity of light incident on said display element and a light

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control variable in said display element, based on the respective grayscale level of each color detected in a detection result for each of said detecting unit (col. 8, line 55 – col. 6, lines 6).

In reference to claim 3, Lim discloses wherein said detecting unit detects a grayscale level of maximum brightness of the display data in a predetermined period, and, when obtaining the maximum brightness, said adjusting unit adjusts the light control variable in said display element so as to have maximum transmittance or reflectance of incident light on said display element and adjusts the intensity of incident light according to the adjusted light control variable (see col. 8, lines 49-65).

In reference to claim 4, Lim discloses that when obtaining brightness of a grayscale level other than the grayscale level of maximum brightness, said adjusting unit adjusts the light control variable in said display element.

In reference to claim 5, Lim discloses wherein an intensity of light incident on said display element after adjusting the intensity of light and the light control variable by said adjusting unit is smaller than an intensity of light incident on said display element without performing the adjustments (col. 8, line 65- col. 9, line 1).

In reference to claim 6, Lim discloses wherein an incident region of light to be incident on said display element is divided, and the detection of a grayscale level by said detecting unit and the adjustments of the intensity of light and the light control variable by said adjusting unit are performed for each of the incident regions (see Fig. 10, col. 41-61).

In reference to claims 7 and 8, Lim discloses wherein said display element is a liquid crystal display element and wherein a liquid crystal material used in said liquid crystal display

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element has spontaneous polarization (see Fig. 1 col. 2, line 1-14 and col. 7, line 60 - col. 8, line 5).

In reference to claim 10, Lim discloses wherein the lights of a plurality of colors to be incident on said display element are red light, green light, and blue light (see Fig. 9 at ST2).

In reference to claim 11, Lim discloses wherein the lights of a plurality of colors to be incident on said display element are red light, green light, blue light, and white light (see col. 8, lines 57-60).

In reference to claim 12, Lim discloses a converting unit for converting red, green and blue display data into red, green, blue and white display data, wherein said detecting unit detects grayscale levels of display data obtained by said converting unit (input values of each sub-frame are converted by the image signal processor. That is, when the average luminance of Ra, Ga, Ba greater than the grey level 128, the light source corresponding to the component having a larger average luminance will be turned on at the fourth sub-frame; see col. 8, lines 49-65).

In reference to claim 14, Lim discloses a display method for performing a field-sequential type display by synchronizing successive switching of lights of a plurality of colors to be incident on a display element with light control in said display element based on display data of each color corresponding to an image to be displayed (see rejection of Claim 1), comprising:

detecting a grayscale level of the display data for each color (see steps ST1 and ST2 of Fig. 9); and

adjusting, individually independently for each color, an intensity of light incident on said display element and a light control variable in said display element, based on the respective a

detection result of the grayscale level of each color respectively (see Steps ST2 and ST3 in Fig. 9 and col. 8, line 43- col. 10, line 40).

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Sato et al. (U.S. Patent No. 7,030,848), hereinafter Sato.

In reference to claim 8, Lim does not disclose a liquid crystal material used in said liquid crystal display element has spontaneous polarization. Sato discloses a liquid crystal display using liquid crystal display material used in the liquid crystal display element having spontaneous polarization (col. 42, lines 45-49).

It would have been obvious for one of ordinary skill in the art at the time of the invention use the liquid crystal material display element having spontaneous polarization in the device of Lim as taught by Sato because it would ensure sufficient light emitting time and achieve more satisfactory display (col. 42, lines 52-55).

In reference to claim 9, Lim discloses the display device can be a reflecting type of Digital light Processing devices (col. 11, lines 25-36) but does not disclose the display element is a digital micro mirror device. Sato discloses liquid crystal display receiving video signal and controlling the intensity of the backlight and a display element based on the receiving display data (see Fig. 4, col. 12, lines 36-54) and the driver circuit can further used for reflective liquid crystal display such as DMD (Digital Mirror Device).

It would have been obvious for one of ordinary skill in the art at the time of the invention to substitute the reflective display device of Lim with the display element is a Digital Mirror Device as taught by Sato as suggested by Yoshinaga (the invention is not limited to liquid crystal element and may be a light receiving type and projection type such as Digital Mirror Device) to

provide a reflective liquid crystal display such as DMD to provide good image brightness and contrast, and therefore produces more reliable gray scale patterns for the display system.

***Response to Arguments***

5. Applicant's arguments with respect to the elected claims 1, 3-12 and 14 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Q. Dinh whose telephone number is (571) 272-7686. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD HJERPE can be reached on (571)272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duc Q Dinh/  
Primary Examiner  
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